TECH BYTES

SPRING 1987

New TAs

1986 saw five new recruits enter the TA program: Hal Feinstein, WB3KDU; Reed E. Fisher, W2CQH; Andre Kesteloot, N4ICK; Doug Millar, K6JEY; and Joseph D. Moell, KØOV. We welcome you and, as with all TAs, we appreciate your efforts in support of this program.

QSL Cards

We've had many inquiries about obtaining "League" QSL cards. Enclosed is a sample HQ card. As a TA, you are authorized to have your cards printed in this style by any printer you choose. If you prefer, HQ will have your cards printed for you. The cost is approximately $65 per 1000 cards. You will be billed for the cost when the printing has been completed. Please keep in mind that we (HQ) can order only in increments of 4000 cards. (Combined orders; you do not have to order 4000.) Therefore, if you order 1000 cards there may be a "holdup" while we wait for another 3000 to be ordered. Order before you run out. To place an order call Maty Weinberg at (203) 666-1541. Better yet, write in--we will need a sample that shows how you want the information placed on the face of the card.

TA Lists

Enclosed is a copy of the newest TA list. Please take a few minutes to look over your copy and inform us (ASAP--within the next two weeks, please) of any corrections. [These lists are used as reference material by all staffers, and correct information is a essential.]

Also, for future reference, please notify the Technical Department **directly** of any information changes (ie, address, call sign...). Our records are kept separately from membership records.

You will notice that a "renewal month" category has been added to the new TA list. This is the month that your appointment is up for renewal. More on this later.

TA Certificates

New TA certificates are ready! (We've been working on this for some time, and the printing job finally came through without errors.)

New certificates have been sent to all December and March renewals. If you have a December or March renewal and have not received your certificate, let us know.

TA Renewals

You may have noticed that all renewals now occur on a quarterly basis. (This makes it easier for us to handle renewals.) We're attempting to keep this program well organized, and to keep you informed. If all goes well, a newsletter will be generated as appointments are renewed each quarter.

As renewal time approaches we will check to see if we have heard from you during the past year. If you have been an active TA--as most of you are--your appointment will be automatically renewed. If you are one of the silent minority, I'll send you a reminder and ask you to request renewal. There are good reasons for periods of inactivity, but if you are chronically inactive perhaps someone else should take your place.

TA Badges

The ARRL Board of Directors has authorized TAs to purchase official League badges. Enclosed with this newsletter, you will find an order form with instructions and a list of engravers.

1986 Technical Excellence Award

The polls have closed and the results are in. As judges, you have selected Rich Arndt, WB4TLM, and Joe Fikes, KB4KVE, to receive the 1986 Technical Excellence award for their article in April 1986 **QST**, "SuperSCAF and Son--A Pair of Switched-Capacitor Audio Filters." Before this selection becomes official, however, it must be ratified by the Board of Directors. This action should take place at the board meeting later this year.

Sixty ballots and letters of instruction went out to TAs on January 28--to all but two TAs who were authors of material published in 1986. By March 1, the closing date, 29 valid ballots were received. (Two invalid ballots were received, and late ballots continued to trickle in. We would like to see a much better response from you.) To determine the winner, we used the same system of weighting as in the recent past. Actually, various weighting assignments are used, and the results of different weightings have (so far) always been consistent in determining the winner.

A number of interesting comments were received with the ballots. Several TAs have devised sophisticated methods of producing numerical ratings for the articles. Some have suggested we develop a universal scheme for all TAs to follow in the judging process. Our thoughts here are that each TA should be free to use whatever system suits him best. If some subjectivity is involved on the part of a TA in making his decisions, is that wrong? We think not.

This year, as in the past, we included a list of candidates for consideration for the award, determined by a polling of Technical Department staffers. A few TAs expressed concern that this procedure may bias the votes of the judges--a consideration that we have wrestled with too. But experience has shown us that the response is dismal if we ask you fellows to scan the whole year's worth of articles (the number could be as many as 40 or 50 articles) in search of the best three. One year with that procedure used, only 5 ballots came back. We realize that your time is valuable and often scarce, and our objective has been to give you what our poll determined was the "cream of the crop" for consideration. Probably next year we'll supply you with a larger number of candidates, to widen the field for your consideration.

Thank you for your assistance as a judge.

13-Centimeter Band

In anticipation of growth in the Amateur Radio Service and the Amateur-Satellite Service, we are trying to increase awareness of and interest in the 13-cm (2300 - 2310 and 2390 - 2450 MHz) band. AMSAT is planning to use 13-cm frequencies in their proposed PHASE 4 (geosynchronous) satellites. The range 2400 to 2450 MHz is allocated for the Amateur-Satellite Service. It is important that equipment be available for amateurs when the satellite goes up--perhaps 5 years from now.

Microwave ovens operate just above 2450 MHz. That means there is considerable potential for noise problems at the high end of the band. We would like to know how great that problem really is in a typical urban environment. Can you help us by making measurements? Can you provide some guidance in how we should go about getting help and coming up with useful numbers? Should we ask for help in **QST**? How should we ask? Your assistance in this would be greatly appreciated.

About Those Books You Receive From ARRL

From time to time you receive books from us. They arrive without explanation. (It takes time--and money to send a letter.) We send them to you so that you can review them for us.

What should you do when you receive the latest edition of the Handbook, or other technical book? First look at the table of contents and find the areas of your expertise and interest. Then turn to those chapters, and skim them. Is the coverage complete? Are important parts missing? Is the balance okay? Now read through looking for technical accuracy. Do we have the facts right? Is the material up to date? Review only the parts of the book that interest you.

We try to respond to your suggestions and criticisms. There are times when that is not easy to do. For example, a circuit used to illustrate a principle may have a problem. We need a circuit as an illustration. You can help by providing a new or improved version. That is indeed constructive criticism. Of course, the same principle applies to projects as well.

QST Previews

Some of the articles scheduled for future issues of **QST** include:

o **Wes Hayward, W7ZOI** -- Designing crystal filters. Building a receiver? Need good selectivity? This article will tell you how to use inexpensive crystals to build an effective filter.

o **Gary Breed, K9AY** -- A 40-m direct-conversion, phasing type SSB receiver. Single signal SSB (or CW) with all the nice features of direct conversion. Gary is the editor of **RF Design** magazine.

o **Steve Powlishen, K1FO** -- Improvements to his popular 8874 amplifier for 432 MHz. Also optimal design of Yagis for 432 MHz.

o **Clarke Greene, K1JX** -- A tutorial on fiber optics.

Legal Strategy Study

Jerry Hall, K1TD, has written an engineering report for the ARRL Legal-Strategy Committee. In the report Jerry gives the technical reasons that support higher towers. Specifically, Jerry compares antennas at 35 feet and 70 feet, and draws the conclusion that 70 feet, or more, is desirable for Amateur Radio communications. Comparisons are made to 35 feet because that is the limit that is given in the model zoning regulations that most communities are using for developing their own programs.

This problem is basically political in nature. Nevertheless, the engineering report should be of some help. Do you have ideas that you would like to share with us? We would be glad to hear from you.

Keep in Touch

Please, don't be a stranger. As a Technical Advisor you are an important member of the team that delivers publications and services to ARRL members. Many of you send in clippings from your professional literature. These are helpful in keeping the Technical Department staff aware of developments in various disciplines. Many thanks for all you are doing to maintain technical standards and quality.

Help

I'm looking for a copy of the paper "Normalized Design of 90-Degree Phase-Difference Networks," by S. D. Bedrosian that ran in **IRE Transactions on Circuit Theory,** June 1960. Can you help me find one?

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That's it for now. Good DX and vy 73 -- **Chuck, K8CH**

ARRL TECHNICAL ADVISORS

Name & Address	Place of Employment	Expertise	Telephone	Renewal Month
John Battle, N4OE 1000 South Peachtree Suite 10 Norcross GA 30071-2215	John Battle & Associates Manager of Test Engineering	Microwave receivers	(H)404-449-8536 (B)404-449 8536	March
John S. Belrose, VE2CV 3 Tadoussac Drive Aylmer, Quebec CANADA J9J 1G1	Department of Communications Director, Radio Communications Lab	Antennas, radiowave propagation, radio communications technology	(H)819-776-4457 (B)613-998-2308	June
Peter M. Bradley, N1ADX/G4KJZ 5 Granger Road Westboro MA 01581	Northeastern University, Boston Research Associate	Biological effects of radio frequency energy	(H)617-336-2511 (B)617-437-3319	December
Norman H. Bradshaw, W8EEF 646 E. Glenlord Road St. Joseph MI 49085	Heath Company Metrologist	Test equipment & measurements	(H)616-429-9862 (B)617-982-3482	June
Dr. John J. Champa, K8OCL 7800 Hartwell Street Dearborn MI 48126	Burroughs Corporation Corp Safety Manager	Saftety and health	(H)313-581-6103 (B)313-972-8205	March
David Davidson, W1GKM 105 Sherman St. Belmont MA 02178	GTE Laboratories Inc Senior Staff Engineer	Radiowave propagation, electromagnetic bioeffects	(H)617-484-1189 (B)617-466-2396/890-8460	December

Name & Address	Place of Employment	Expertise	Telephone	Renewal Month
Lloyd Dean, W9NEY Box 587 Arlington VA 22216	US Navy Electronic Engineer	Direction finding equipment, receiver design, performance and evaluation	(H) --- (B)202-692-5671/5708	September
Doug DeMaw, W1FB 4061 N. Douglas Road Luther MI 49656	Oak Hills Research & Publishing President	RF circuit design, highperformance receivers & transmitters, solid-state, magnetic-core applications	(H)616-797-5251 (B)616-797-5251	June
Robert V. C. Dickinson, W2CCE P.O. Box 297 Dillingersville Road Zionsville PA 18902		CATV & CATV/amateur interference (compatability)	(H)215-967-1393 (B)215-967-4445	June
Hal Feinstein, WB3KDU 1410 North Rhodes St. Arlington VA 22209		Spread-spectrum		December
Reed E. Fisher, W2CQH 2 Forum Court Morris Plains NJ 07950	AT&T Bell Labs Technical Supervisor	Antennas, Filters, UHF/VHF/RF circuit design	(H) 201-539-6099 (B) 201-386-5448	June
David T. Geiser, WA2ANU 3710 Snowden Hill Road New Hartford NY 13413	General Electric Company AES Dept; Components Engineer	RF and microwave components, bridge	(H)315-737-5154 (B)315-793-5219	March

Name & Address	Place of Employment	Expertise	Telephone	Renewal Month
Helge Granberg, K7ES 2144 E. Aurelius Ave. Phoenix AZ 85020	Motoral Incorporated Principal Staff Engineer	Solid-state RF power, HF/VHF	(H)602-943-0401 (B)602-244-4373	March
John Grebenkemper, KA3BLO 19490 Miller Court Saratoga CA 95070	Tandem Computers Technical Staff Member	Microwave communications, solar theory	(H)415-964-8512 (B)408-248-2648	March
Albert E. Hayes, Jr., K6BH Albert Hayes & Assoc. P. O. Box 730 Yucca Valley CA 92286	Albert Hayes & Assoc, Consulting Engineers; President	Filter and network design, specific applications to EMI problems	(H)619-228-1183 (B)619-228-1173	June
Wes Hayward, W7ZOI 7700 S.W. Danielle Ave. Beaverton OR 97005	Tektronix, Inc Design Engineer	Receiver design, RF instrumentation & measuremrnts, network design, QRP	(H)503-646-2754 (B)503-627-6464	December
Roy Hejhall, K7QWR 4601 E. Mulberry Dr. Phoenix AZ 85018	Motorola Semiconductor Sector Principal Staff Engineer	Solid-state RF power transistors an circuits	(H)602-952-8048 (B)602-244-4374	June
Albert Helfrick, K2BLA Powerville Road, Box 87 Boonton NJ 07005	Dowty/RFL Industries Principle Electronics Engineer	Specialized modes, UHF/microwaves	(H)201-263-2927 (B)201-334-3100	December

Name & Address	Place of Employment	Expertise	Telephone	Renewal Month
Michael E. Hiehle, W6RZ 10719 Esterina Way Culver City CA 90230	Hughes Aircraft Company Retired	Antennas (primarily HF/VHF) design, patterns, gain, measurements	(H)213-838-5083 (B) ---	March
Lawrence S. Higgins, W5QMU 2522 Old Hickory Trail San Antonio TX 78230	Self Employed Physician	Biological effects of RF energy	(H)512-341-2910 (B)512-656-0311	December
Dick Jansson, WD4FAB 1130 Willowbrook Trail Maitland FL 32751	Martin Marietta Aerospace Sr Staff Engineer - Retired	Thermal design	(H)305-644-9008 (B) ---	September
L. Edward Kane, W6ONT P. O. Box 361 Lakewood CA 90714	Douglas Aircraft Company Sr. Engineer, Radiating Sys Designer	Antennas & radiation patterns	(H)714-716-2601 (B) ---	December
Andre Kesteloot, N4ICK 6800 Fleetwood Rd. McLean VA 22101		Spread-Spectrum communications	(H)703-356-5519	December
Deane E. Kidd, W7TYR 27270 S. W. Ladd Hill Road Sherwood OR 97140	Tektronix Inc Corp New Product Intro Coordinator	Parts-procurement information and test equipment manuals	(H)503-625-7363 (B)503-627-1730	June

Name & Address	Place of Employment	Expertise	Telephone	Renewal Month
Geoffrey H. Krauss, WA2GFP 16 Riviera Drive Latham NY 12110	GE Co/Corp R&D Center Patent Counsel - Elect & Med Systems	VHF-UHF-MW equipment design, construction, test & use	(H)518-785-8689 (B)518-385-3289	December
Oliver K. Lewis, W4EVV 5524 Sherrill Drive, N. E. Atlanta GA 30342	Am Soc of Htg, Ref, & A/C Eng, Inc Metric Coordinator	Metrics (also heating, ventilating, air conditioning, refridgeration)	(H)404-634-0465 (B)404-636-8400 X 213	December
Douglas Macheel, K6HLE 6387 Rainbow Dr. San Jose CA 95129	Sylvania Sys Group, GTE Prod Corp Tech Program Mgr/Eng Section Head	VHF/UHF broadband power amplifiers	(H)408-252-1272 (B)415-966-3451	September
Henry S. Magnuski, KA6M 2019 Barbara Drive Palo Alto CA 94303	Gamma Technology Inc President	Packet Radio	(H)415-854-1927 (B)415-856-7421	December
John Maguire, AE9I 1122 - 18th Street Manhattan Beach CA 90266	US Air Force, Space Division Systems Engineer	Millimeter wave systems engineer engineer; spacecraft environmental testing	(H)213-545-9791 (B)213-416-7892	June
Al Markwardt, W5PXH 826 Sherbrook Dr. Richardson TX 75080	Northern Telecom Technical Training Instructor	RFI, antennas, HF linear amplifiers HF Transceivers, microprocessors	(H)214-235-0996 (B)214-234-7786	December

Name & Address	Place of Employment	Expertise	Telephone	Renewal Month
Walter Maxwell, W2DU 243 N. Cranor Ave. DeLand FL 32720	RCA Corporation Retired	Specialists in antennas & transmission lines	(H)904-736-9789 (B) ---	December
Doug Millar, K6JEY 3742 Stockman St. National City CA 92050	St. Timothy Lutheran Church Sr. Pastor	Metrology	(H) 619-267-3798 (B) 619-475-1475	June
Joseph D. Moell, K0OV P.O. Box 2508 Fullerton CA 92633	Hughes Aircraft Co, Ground Systems Grp Head of Transmitter Subsystems Section	Transmitter hunting (radio direction finding)	(H)714-879-6895 (B)714-732-3273	December
John E. Montague, WORUE 939 Arbor Mahtomedi MN 55115	Audio Bionics, Inc Director of Engineering	Microprocessors, digital communication, digital system design, voice synthesis, display technology	(H)612-426-5673 (B)612-941-5464	March
J.P. Neil, P.E., KN6B 2336 Hilo Court Mountain View CA 94040	Self Employed Consulting Engineer	Telephony and related matters (equipment; system design; applications; and practices)	(H)415-967-7579 (B)415-967-7579	December
Paul Newland, AD7I P. O. Box 205 Holmdel NJ 07733-0205	AT&T Information Systems Laboratories Member of Technical Staff	Digital communications	(H)201-671-8107 (B)201-834-1149	September

Name & Address	Place of Employment	Expertise	Telephone	Renewal Month
Tom O'Hara, W6ORG 2522 Paxson Lane Arcadia CA 91006	P. C. Electronics Owner	Amateur television	(H)213-446-2750 (B)213-447-4565	June
Richard K. Olsen, N6NR TRW LSI Products P. O. Box 2472 La Jolla CA 92038	TRW LSI Products Manager of Test Engineering	Digital signal processing (sampling theory, remote bases, UHF & microwave solid-state	(H) --- (B)619-457-1000 X 346	December
Robert S. Parnass, AJ9S Bell Laboratories Naperville-Wheaton Road Naperville IL 60566	Bell Laboratories Technical Staff Member	Computer science, data communications, equipment repair, short wave listening	(H) --- (B)312-979-5414	March
Daniel N. Peterson, WA6OIL Route 1, Box 11AA LaCenter WA 98629	Loral Microwave Sr. Engineering Technician	Microwave applications	(H)206-263-2878 (B) ---	March
Andrew Pfeiffer, K1KLO 132 Whippoorwill Road Old Lyme CT 06371	Self Employed Medical Research Consultant	Consultant in mechanical structure & fine mechanism design	(H)203-434-5621 (B)203-434-5621	March
Emil Pocock, W3EP 41 Lewiston Street Willimantic CT 06226	Eastern Connecticut State University	Radio propagation	(H) (B)203-456-2231	June

Name & Address	Place of Employment	Expertise	Telephone	Renewal Month
Robert B. Rose, K6GKU 1242 Cresthill Road El Cajon CA 92021	US Naval Ocean Systems Center Head, Ionospheric Assess Sys Branch	HF propagation and solar/ionospheric effects	(H)714-588-1200 (B)714-225-6184	September
Tom Russell, N4KG Route 1 Box 705-C Harvest AL 35805	Chrysler Corporation Sr Design Engineer	HF station design - receivers, transceivers, antenna systems, towers, propagation	(H)205-233-1402 (B)205-895-1934/1935	September
Kerry R. Sandstrom, K5KS 1022 Warden Drive San Antonio TX 78245	Air Force Cryptologic Support Ctr Electrical Engineer	Bilogical effects, electromanetic compatibility, measurements	(H)512-675-2474 (B)512-925-2511	December
Peter J. Schram, W3UBP 12 Royal Lake Drive Braintree MA 02184	National Fire Protection Assoc	Electrical safety expert, SNF National Electric Code	(H)617-848-9677 (B)617-770-3000	June
Jerry Sevick, W2FMI 32 Granville Way Basking Ridge NJ 07920	Bell Laboratories, Inc Director, Technical Relations	Antennas & transmission line transformers	(H)201-766-6122 (B)201-582-3717	September
William A. Shaheen, N1CQ 49 South Street Granby MA 01033	Goldbert-Zorno & Assoc Geoeltronical Engineer	Foundations - earth anchorage systems/structural analysis of communication tower systems	(H)413-467-9075 (B)413-545-0088	September

Name & Address	Place of Employment	Expertise	Telephone	Renewal Month
Richard Simpson, W6JTH 3326 Kipling St. Palo Alto CA 94306	Stanford University Senior Research Associate	Radiowave propagation, EME & related activities	(H)415-494-9272 (B)415-497-3525	March
Nathan O. Sokal, WA1HQC 4 Tyler Road Lexington MA 02173	Design Automation Inc President	RF power amplifiers & radio transmitters	(H)617-862-2388 (B)617-862-8998	September
Roger Stephens, K5VRX 6818 Westlawn Drive Falls Church VA 22042	US Dept of Labor - OSHA Sr Industrial Engineer/Ergonomist	BIO hazards	(H)703-532-1111 (B)	December
Kenneth L. Stuart, W3VVN 48 Johnson Road Riviera Beach MD 21122	Gould; Defense Electronic Division Electronic Design Engineer	Power supplies (voltage regulators) - switching & analog, DC-DC converters, etc) & analog circuitry	(H)301-437-1758 (B)301-428-4518	March
Jeff H. Walker, W3JW 4517 Three Sisters Drive Pasadena MD 21122	ITT Research Institute Project Manager	Equipment performance measurement & EMC	(H)301-437-0171 (B)301-267-2554	March
Richard L. Webster, K9ULW 1775 Henderson Drive Marion IA 52302	Rockwell International/Collins Div Project Engineer	Quality, test methods, test equipment for communications equipment, HF communication systems	(H)319-377-8160 (B)319-395-4169	March

Name & Address	Place of Employment	Expertise	Telephone	Renewal Month
Edward E. Wetherhold, W3NQN 102 Archwood Ave. Annapolis MD 21401	Honeywell Inc Senior Engineer	Passive LC filters	(H)301-268-0916 (B)301-224-4500 X 243	March
Andrew B. White, K9CW 1105 S. Orchard St. Urbana IL 61801	HAL Communications Corp R & D Head	Microprocessors, digital circuits, data communications	(H)217-367-1812 (B)217-367-7373	December
Glenn L. Williams, AF8C 513 Kenilworth Road Bay Village OH 44140	Gould Inc/Recording Systems Div Program Manager	Digital signal processing, ASCII, digital, computer hardware, software, packet radio	(H)216-835-4897 (B)216-361-3315 X 396	March
Paul M. Wilson, W4HHK 226 Peterson Lake Rd. P. O. Box 73 Collierville TN 38017	Self Employed Photographer	EME, MS and UHF	(H)901-853-7373 (B)901-853-7373	March
Brian Wood, W0DZ 710 Grove Court Loveland CO 80537	Hewlett-Packard Technical Staff Member	Microprocessors, digital design, software, RTTY	(H)303-667-7382 (B)303-667-5000 X 2915	September
Bob Zavrel, W7SX 707 Borello Way Mountain View CA 94041	Signetics RF/Audio Applications Engineer	RF/audio circuits, antennas, radio broadcasting, integraded radio circuits, FET amps, analog switches	(H)408-267-4229 (B)408-746-1383	September

Name & Address	Place of Employment	Expertise	Telephone	Renewal Month
David A. Zinder, W7PMD 4121 W. Augusta Phoenix AZ 85021	Sperry Flight Systems Principal Engineer	Power supplies and AC power systems	(H)602-939-1143 (B)602-863-7257	December